



## Simulation-Based Sequential Bayesian Filtering

By Mahsiul Khan

LAP Lambert Acad. Publ. Jan 2011, 2011. Taschenbuch. Condition: Neu. Neuware - Stochastic models are used to describe many real world random processes which necessitate the extraction of hidden (unobserved) states (signals) from noisy observable (measured) outputs. We consider a class of nonlinear dynamic state space models which contain conditionally linear and unknown static parameters. For tracking the a posteriori distribution of the hidden states of this type of models, one can apply particle filtering, which is an increasingly popular method in many fields of science and engineering. It is based on the Bayesian methodology and approximations of the distributions of interest with random measures composed of samples (particles) from the space of the states and weights associated to the particles. Particle filtering performs tracking of the desired distributions as new observations are made by modifying the random measure, that is, the particles and the weights. We address the application of particle filtering with the use of the Rao-Blackwellization principle. Rao-Blackwellization reduces the variance of estimators, and it is based on the Rao-Blackwell theorem. 124 pp. Englisch.

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